

**SECTION 21 1339**  
**FOAM-WATER SPRINKLER AND SPRAY SYSTEMS**

**PART 2 PRODUCTS**

**1.01 SYSTEM DESIGN**

- A. Provide foam-water solution protection complying with NFPA 13 and NFPA 16, for the areas indicated.
  - 1. Provide a complete system with all required valves, controls, wiring, and pressure sources to supply foam concentrate at the required flow and pressure to the proportioners, through the distribution piping, to discharge elements.
  - 2. Foam Concentrate: Aqueous film-forming type (AFFF).
  - 3. Tank Capacities: Sufficient to provide sufficient foam flow for the time specified when the system is discharging at design discharge rate.
- B. Fire Alarm: Provide a fire alarm system monitoring foam releasing system and covering building and site areas that foam extinguishing system covers.
- C. Wiring and Electrical Work: Comply with NFPA 70.

**1.02 FOAM PROPORTIONING DEVICES**

- A. Proportioners: In-line balanced pressure proportioners.
- B. Pressure Balancing Valve:
  - 1. Pressure balancing valve: Modulate to balance the foam concentrate pressure to the water pressure at the proportioner.
- C. Duplex Pressure Gage:
  - 1. Duplex Pressure Gage: Sensing the water and foam concentrate pressures at the proportioner.

**1.03 DISCHARGE ELEMENTS**

- A. Oscillating Monitors: Water powered type with chain drive, with mechanical adjustments for arc and speed of oscillation.
  - 1. UL (DIR) listed.
  - 2. FM (AG) approved.

**1.04 PIPING AND PIPING SPECIALTIES**

- A. Piping for Water and Foam Solution (Not Concentrate): Steel pipe, ASTM A53/A53M, Schedule 40 unless otherwise indicated.
- B. Piping for Foam Concentrate: Schedule 40, 300 series stainless steel pipe with flanged fittings.

**1.05 VALVES**

- A. Valves - General: Pressure rating not less than maximum working pressure available to system.
- B. Valves in Contact with Water and Foam Solution: Cast iron body construction.
  - 1. UL (DIR) listed.
  - 2. FM (AG) approved.
- C. Valves in Contact with Foam Concentrate: Stainless steel, brass, or bronze body construction.
- D. Deluge Valves: Non-latching or mechanically latching type.
- E. Flow Control Valves: Non-latching type, with a diaphragm operated clapper, externally resettable by operation of the valve trim, without removing the valve's face plate.
- F. Alarm Check Valves:
- G. Automated Foam Concentrate Valves: Hydraulically controlled ball valves, bronze or stainless steel body, stainless steel ball, and glass reinforced teflon valve seats:
- H. Valve Supervisory (Tamper) Switches: Appropriate for type of valve on which it is used; in metal housings.

1. UL (DIR) listed.
2. FM (AG) approved.

#### **1.06 FIRE ALARM AND CONTROL SYSTEMS**

- A. Provide foam releasing and fire alarm systems connected to operate as a single system.
  1. Foam Releasing Controls: Dedicated panel containing releasing circuits for solenoids, hard wired, UL (DIR) listed for releasing service.
  2. Provide control, alarm, detection, releasing, notification, and manual equipment and components are electrically compatible and either are the standard equipment of a single manufacturer or are cross-listed for use with each other; non-listed components will be rejected.
- B. Alarm and Control Panels: Modular construction to facilitate system expansion and servicing.
- C. Operational Functions:
  1. Annunciate alarm and trouble conditions for each zone.
  2. Backup Power: Design and equip all portions of the fire alarm systems to be capable of operating on standby (rechargeable) battery power.
    - a. Ensure that loss of primary power or the sequence of applying primary or emergency power will not affect normal operation or annunciation or the transmission of alarm, supervisory or trouble signals.
    - b. Provide a power transfer circuit to switch to backup power automatically and instantaneously upon loss of normal AC power.

#### **1.07 DETECTION DEVICES AND NOTIFICATION APPLIANCES**

- A. Flame Detectors: Either controller based or unitized type, mounted on swivel bases for proper positioning, capable of passing specified field tests.
  1. UL (DIR) listed.
  2. FM (AG) approved.
  3. Range: Capable of responding to a \_\_\_\_ fuel fire, \_\_\_\_ feet by \_\_\_\_ feet in size at a distance of \_\_\_\_ feet, within \_\_\_\_ seconds.
  4. Thermal Rating: \_\_\_\_ degrees F to \_\_\_\_ degrees F.
- B. Heat Detectors: Spot type, rate compensated, automatically self-restoring detectors.
- C. Evacuation Notification Appliances: Surface-mounted, suitable for use in an electrically supervised circuit and compatible with the releasing panel.
- D. Manual Fire Alarm and Foam Discharge Stations: Double action type listed as a manual fire alarm station.
  1. UL (DIR) listed.
  2. Reset Function: Requiring a key for reset; key to match the key for the fire alarm panel and foam releasing panel.
- E. Manual Foam Abort Stations: Momentary contact (dead man) switch, mounted on weatherproof backbox.
  1. Type: 3/4 inch minimum diameter red protected button.

**END OF SECTION 21 1339**